

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number 033794/312694

(filed with the Notice of Appeal)

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| Application Number: 10/596,239 | Filed: March 2, 2007 |
| First Named Inventor: Dainez | |
| Art Unit: 3746 | Examiner: Todd D. Jacobs |

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

Respectfully submitted,

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Attachment
Reasons for Requesting Pre-Appeal Brief Request For Review

This paper is in response to the final Office Action dated December 5, 2011. In the Office Action, Claims 1-5, 9, 12-13, 16, and 18-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Pub. No. 2003/0219341 to Dovey et al. in further view of U.S. Patent Application Pub. No. 2003/0044286 to Kim; Claims 1-5, 9, 12-13, 16, and 18-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dovey and Kim and further in view of U.S. Patent No. 6,176,683 to Yang; Claims 6-7, 10-11, 14, and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dovey and Kim or Dovey, Kim, and Yang, in further view of U.S. Patent No. 5,224,835 to Oltman; Claims 8 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dovey and Kim in view of Oltman and further in view of Yang; Claims 8 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dovey, Kim, and Yang in view of Oltman; Claim 31 was rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,179,630 to Stuber or U.S. Patent Application Pub. No. 2003/0161734 to Kim (hereinafter “Kim (‘734”)” in further view of Dovey and Kim. In light of the subsequent remarks, Applicant respectfully requests that the rejections be reversed and that all pending claims be allowed.

A. Summary of Dovey and Kim References

Dovey generally discloses a reciprocating machine, such as a vacuum pump, having a cylinder containing a piston disposed for reciprocating movement, a variable voltage driver for driving the piston, a vibration sensor for sensing contact between the piston and ends of the cylinder, and a controller connecting the sensor and driver to control movement of the driver and piston (Dovey, Abstract). If the vibration sensor detects a collision between the piston and either end point of the cylinder, the sensor sends a signal to the pump controller to reduce the drive voltage thereby reducing the piston stroke length (*Id.*, col. 2, lines 15-21).

Kim generally discloses a linear compressor control apparatus comprising a collision detection unit, a control unit, and a compressor driving unit (Kim, Abstract). The control unit initially sets a maximum amplitude for the piston in the compressor based on a preset value provided by the manufacturer (*Id.*, paragraph 0029). The compressor driving unit controls the maximum amplitude of the piston under the control of the control unit (*Id.*, Abstract). During operation, if the collision detection unit detects a collision of the piston with a valve of the compressor, it sends a signal to the control unit to reset the maximum based on the amplitude data of the piston when the collision occurred (*Id.*).

B. The Rejection of Claims 1, 12, 30, and 31 in View of Dovey and Kim Should be Reversed

Independent Claims 1, 12, and 30 generally relate to a fluid pump or linear compressor controlling system comprising a fluid pump or linear compressor having a piston positioned in a cylinder, a sensing assembly, and an electronic controller. The electronic controller is configured to cause a calibration impact by performing a calibration procedure comprising successively incrementing the piston displacement stroke until the occurrence of a calibration impact. The calibration procedure is performed both prior to operation and in response to detecting an impact during operation.

Applicant will show that the combination of Dovey and Kim at least fails to teach or suggest (1) performing a calibration procedure (2) causing a calibration impact, and (3) performing the calibration procedure prior to operation. That is, Applicant will show that Dovey and Kim solely describe general operation of a pump or compressor and not a calibration procedure. Applicant will also show that while Dovey

and Kim may experience impacts during operation, neither specifically causes a calibration impact. Additionally, Applicant will show that since Dovey and Kim only describe one type of operation, namely general operation, they do not teach performing a calibration procedure prior to operation.

1. The combination of Dovey and Kim does not disclose performing a calibration procedure

The Office Action alleges that Dovey teaches the recitation of independent Claims 1, 12, and 30 related to performing a calibration procedure. Applicant notes, however, that the disclosure of Dovey is entirely silent with respect to performing a calibration procedure. Instead, the majority of the limited disclosure of Dovey focuses on describing the pump apparatus itself. Only one section of Dovey provides any description of how the pump apparatus may be used, namely:

In use, the controller 2 is set to deliver a gradually increasing voltage across the driver 4. This has the effect of gradually increasing the stroke length of the piston 5. Should the end of the piston 5 strike an end plate at either end 6, 7 of the pump cylinder 1, this is detected by the vibration sensor 3 which generates a signal which is transmitted to the controller 2. Receipt of the signal from the vibration sensor 3 then causes the controller 2 to reduce the drive voltage to the driver 4. (Dovey, col. 2, lines 13-21) (**emphasis added**).

As emphasized in the above passage, this section of Dovey, which is cited by the Office Action as teaching the calibration procedure, simply describes the general operation of the pump. In fact, Dovey fails to describe **any** other procedure aside from this general operation, let alone a calibration procedure. Suggesting that this section of Dovey describes a calibration procedure rather than general operation, as the Office Action does, therefore appears to imply that the entire disclosure of Dovey relates solely to a calibration procedure since no other operation is described. Such an interpretation is improper, particularly when a calibration procedure is never mentioned anywhere in Dovey. Accordingly, Applicant respectfully submits that Dovey fails to disclose performing a calibration procedure, as recited by independent Claims 1, 12, and 30.

Kim is not cited as teaching a calibration procedure, but rather as teaching “a task, which was performed before true operation of the compressor, [and] again after impact is detected” (Office Action, page 3). As such, Kim does not cure the deficiency of Dovey. Accordingly, Applicant asserts that the combination of Dovey and Kim at least fails to teach or suggest performing a calibration procedure.

2. The combination of Dovey and Kim does not disclose causing a calibration impact

Independent Claims 1, 12, and 30 further recite causing a calibration impact during the calibration procedure. More specifically, these claims recite successively incrementing the piston displacement stroke **until the occurrence of a calibration impact**. The Office Action alleges that Dovey discloses a calibration procedure comprising incrementing the piston displacement stroke until the occurrence of an impact (Office Action, page 2). Initially, Applicant notes that for the reasons set forth above, Dovey does not disclose performing a calibration procedure, and therefore does not disclose causing a calibration impact during such a calibration procedure.

Furthermore, the system of Dovey does not disclose incrementing the piston displacement stroke **until the occurrence of a calibration impact**. Instead, Dovey teaches incrementing the piston stroke length during normal operation, which may or may not result in a collision. In fact, the Abstract of Dovey specifically states that the controller controls the piston stroke to “reduce **if not eliminate** contacting of the piston with the cylinder.” Dovey also repeatedly uses conditional language suggesting that in various embodiments no impact will occur. For example, Dovey states that “**should** the end of the piston strike an end plate at either end of the

pump cylinder, this is detected by the vibration sensor” (Dovey, col. 2, lines 15-18). As another example, Dovey twice states that the vibration sensor is configured for sensing any contact between the piston and an end point of the cylinder (Dovey, col. 1, lines 42-43; col. 2, lines 28-30). Therefore, Dovey does not disclose performing a calibration procedure comprising causing a calibration impact, because embodiments of Dovey may not result in any impact at all.

In the Response to Arguments section, the Office Action suggests that “since Dovey teaches gradually increasing the voltage, there ultimately will in fact be impact” (Office Action, page 9). Applicant respectfully asserts that this statement is incorrect. Dovey does not disclose the initial voltage, the amount by which the voltage is gradually increased, the frequency with which the voltage is increased, or the amount of time the pump is in use. Any number of variations of these factors could result in an embodiment where no impact will occur. For example, if the initial voltage and/or the amount by which the voltage is increased are low, the system of Dovey may not be in operation long enough for the voltage to increase to a level resulting in a collision. As another example, the voltage may be increased very infrequently, such that a collision may not occur if the operation of the pump is relatively brief. Therefore, Applicant respectfully submits that although teaching gradually increasing the voltage, Dovey does not guarantee that there will ultimately be impact.

Kim similarly fails to teach or suggest causing a calibration impact, but rather at best describes detecting an impact during normal operation should one occur. As such, Kim does not cure the deficiency of Dovey. Accordingly, Applicant asserts that the combination of Dovey and Kim at least fails to teach or suggest causing a calibration impact.

3. The combination of Dovey and Kim does not disclose performing the calibration procedure prior to operation

Independent Claims 1, 12, and 30 further recite that the calibration procedure comprising causing a calibration impact is performed prior to operation. The Office Action does not reference this claim recitation, but rather alleges that Dovey discloses “a calibration having an initial reading” (Office Action, pages 2-3). Applicant initially notes that a calibration having an initial reading is not necessarily a calibration procedure performed prior to operation. For example, a calibration performed during normal operation may also have an initial reading.

Additionally, as noted above, Dovey only describes general operation of the pump apparatus without describing any other type of procedure, such as a calibration procedure. Indeed, nothing in Dovey suggests that the increasing of the piston stroke length is part of a procedure that is somehow distinct from normal operation and occurs prior to such operation. Rather, the language of Dovey appears to imply that the increasing of the piston stroke length is simply part of the general operation of the pump. Even if the increasing of the piston stroke length described in Dovey is considered to be a calibration, as alleged in the Office Action, there is no indication of what would be considered the operation prior to which such a calibration is performed. Therefore, Applicant respectfully submits that Dovey further fails to teach or suggest performing a calibration procedure comprising causing a calibration impact prior to operation.

Furthermore, for Dovey to teach performing a calibration procedure prior to operation as recited in independent Claims 1, 12, and 30, Dovey would have to teach causing a calibration impact prior to operation of the pump apparatus. As Applicant has previously shown, however, many different embodiments of Dovey may not result in any impact occurring at all. It follows that if Dovey does not cause an impact, the calibration procedure would not complete and, therefore, general operation would never begin in these embodiments. Therefore, the interpretation set forth in the Office Action that Dovey teaches a calibration procedure causing a calibration impact prior to operation is improper because in many embodiments, such an interpretation would prevent the pump of Dovey from ever operating.

Kim similarly fails to teach or suggest performing a calibration procedure comprising a calibration impact prior to operation. In fact, Kim does not teach performing causing a calibration impact at all. Instead, Kim describes setting a maximum amplitude of a piston based on a preset value and adjusting the maximum amplitude should an impact occur during operation. As such, Kim does not cure the deficiency of Dovey. Accordingly, Applicant asserts that the combination of Dovey and Kim at least fails to teach or suggest performing a calibration procedure comprising causing a calibration impact prior to operation.

Conclusion

For at least the reasons set forth above, Applicant respectfully submits that Dovey and Kim, whether considered alone or in combination, fail to teach or suggest each and every recitation of independent Claims 1, 12, and 30. Accordingly, it is submitted that Claims 1, 12, and 30 are patentably distinct from the cited references. For similar reasons, Applicant submits that independent Claim 31, which recites an environment cooler comprising a control system as defined in Claim 1, is further patentable over the cited references.

C. The Rejection of Claims 18 and 27 in View of Dovey and Kim Should be Reversed

Independent Claims 18 and 27 contain similar recitations to independent Claims 1, 12, and 30, particularly with respect to a calibration procedure. In particular, independent Claim 18 recites “subjecting the piston stroke in the cylinder to a calibration procedure until a calibration impact is detected, wherein the calibration procedure comprises successively incrementing the piston stroke to cause the calibration impact with the stroke end.” Additionally, independent Claim 27 recites “successively incrementing the piston stroke during a calibration procedure to cause an impact with the stroke end to determine and store a maximum value of piston displacement.” Therefore, for at least reasons (1) and (2) set forth above with respect to independent Claims 1, 12, and 30, Applicant respectfully submits that independent Claims 18 and 27 are similarly patentable over the combination of Dovey and Kim. Accordingly, Applicant requests that the rejection of these claims be withdrawn.

D. The Rejection of Claims 1, 12, 18, 27, 30 and 31 in View of Dovey, Kim, and Yang Should be Reversed

Applicant submits that independent Claims 1, 12, 18, 27, 30 and 31 are patentable over the combination of Dovey, Kim, and Yang for at least the reasons set forth in sections A and B above with respect to the combination of Dovey and Kim. The inclusion of the Yang reference does not cure the deficiencies described above with respect to disclosing a calibration procedure comprising causing a calibration impact performed prior to operation, nor is Yang cited as doing so. Indeed, the Office Action only cites Yang as teaching recitations of independent Claims 1, 12, 18, 27, 30, and 31 related to storing a maximum value of piston displacement and monitoring the displacement to prevent displacement as far as the maximum displacement. Accordingly, Applicant requests that the rejection of these claims in light of the combination of Dovey, Kim, and Yang be withdrawn.

E. The Rejection of the Dependent Claims Should be Reversed

Because each of the dependent claims includes each of the recitations of a respective independent base claim, Applicant further submits that the dependent claims are patentably distinguishable from the cited references, taken alone or in combination, for at least those reasons discussed above. Accordingly, Applicant respectfully submits that the rejections of the dependent claims should be reversed and requests that the rejection of the dependent claims be withdrawn.

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